

The Power of Teacher Collaboration: Putting Passions Into Practice: Opening "The Third Eye" By Providing "A Third Space" For Teacher Candidates To Design an Interest Driven After School Programme in Gerodontology: A Research

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ABSTRACT

Background: To design an interest driven after school programme, its efficacy needs to be adequately evaluated. This study was conducted with the aim to determine the efficacy of mobile devices to look for bridges between spaces that encourage seamless learning. This is a research evaluation on the third space in mobile learning, a way to describe new learning possibilities offered by mobile learning.

Methodology: This is a prospective follow up study using a pre- and post- intervention assesment. A convenience sampling procedure was used. The study was done in Govt. Dental college & Hospital, Nagpur. All dental interns (n=60) were invited to participate in the study and written consent was taken.

Results: A statistically significant difference was observed in pre- and post- interventions scores ($p < 0.05$).

Conclusion: The results of this study indicated that mobile devices can be used anytime as an effective tool for improving the knowledge and thus act as resource and tools influencing approaches to learning.

Keywords: Dentistry, gerodontology, teacher collaboration.

INTRODUCTION

The metaphor of the "third space" for discussing mobile learning reminds us of our ancient system of learning through "Gurukul Ashram Parampara." Wherein today there is a need to look at the space acting as a bridge between two constructs. The ability to learn anywhere, anytime and at any space is encouraged by using mobile

devices which provide us of the legendary "Third Eye Concept." When we talk to open the third eye takes us to the era of ancient shrine of "Lord Shiva." Today we correlate to focus on modern approach to visualize the entire world and incorporate the approach into mobile intensive learning and mobile intensive pedagogy. To acquire knowledge learning is primarily facilitated through mobile devices that act as resources and tools and influence approaches

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to learning. Most suitable pedagogies are ones which exploit the unique characteristics of mobile devices, enabling untethered learning.

The goals of the study were three fold. First, to review the literature of out of school learning context and their role in interest driven subject. eg; to provide oral health to the geriatric population. For the purpose of study after school programme was defined as professional learning experience that occurred in spaces beyond "Coursework and Practicum". The purpose of the comprehensive literature review was to explore the significant new challenges for healthcare professionals in the 21st century to provide oral health care facilities to the geriatric population in education programmes nationally and internationally. The second goal of the study was to explore the value of diversifying the contexts through which teacher candidates learn the power of teacher collaboration; what it means to be a teacher to face the alteration of Age Pyramid which poses a challenge and a problem.

The third goal of the study was to identify and consider key factor in designing an effective interest driven after school learning spaces to prepare for the additional strain especially toward oral health welfare services. Thus, we are committed to improve our skill levels, education and health to overcome a challenge and a problem by research in the field and that's the key. Our study was guided by the following research questions.

1. What is the design of teaching learning media in the instruction of interest driven field of geriatric dentistry?
2. What is the use of mobile intensive powerpoint presentation (Pedagogy) as a teaching tool for undergraduate students in the subject of gerodontology?
3. What is the efficacy of interest driven afterschool learning in the specific subject through "teacher collaboration"?

The review of literature began with a thorough computer assisted search, server key - Education Database. Upon identifying Primary and supplementary search terms and further narrowing the search terms, for eg; mobile learning and gerodontology yielded more studies relevant to our

research questions and were centred into Zotero a Research Database. To evaluate each one in terms of its ability to address the research questions and thus identified and short listed about 27 no. of articles out of about 1500 no. to include in the study.

The analysis was guided by the three research questions which were organized into a spreadsheet to facilitate a consistent collection of data. In the process we identified several codes related to the purposes for which teaching learning programmes was designed, the differences between the powerpoint learning experience and more traditional "chalk and talk" approaches and the outcomes of the designs. In terms of a model it is found that "mobile learning experience" were often shaped by new surroundings with school or community based organization and were designed to fit the education programme as well as needs of the community patterns. The design feature of powerpoint presentation as a teaching tool in the subject of gerodontology was coded for consideration in planning mobile learning as well as challenges in implementing these programme. (Fig:1)

There is Increased life expectancy of an average Indian man and the population of senior citizens (60 and above) in India is increasing. India harbours 77 million senior citizens ie; 7.7 % of the total population and is expected to increase to more than 10 percent by year 2021. This is the soaring elderly population time bomb! This is a warning to prepare for additional strain especially towards oral health welfare services. To overcome we are committed to improve our skill levels, education and health. Poor oral health might lead to deterioration of general health.¹ The importance of the subject of gerodontology does not reflect in undergraduate curriculum in dentistry. Normally all the university of India follow the curriculum designed by D.C.I. There is lack of training and basic aspects of geriatric dentistry are not included in the curriculum.² The provision to learn about geriatric patient is mentioned only as a part of complete denture and diagnosis and treatment planning of complete denture. The graduates after completion are likely to have less knowledge about problems of geriatric patients.

Table 1: Comparison between pre and post test scores regarding four domains.

Domain	Questions	n(%)		P
		Pre test correct answer	Post test correct answer	
Domain I	From your past experience, Which is an efficient learning/ Teaching tool?	45(81)	59(90)	0.009
Domain II	When the elderly people have Problems adjusting to "empty nest"	45(85)	55(95)	0.033
Domain III	The prognosis of implant supported restorations in elderly is as good as in young adults	7(10)	45(75)	<0.0001
Domain IV	Neglect of oral health in older patients may lead to more complications.	37(65)	55(95)	0.0001

Mc Nemar test used for comparison .Very highly significant (at 99% CI)

Table 2: Overall Comparison between pre and post test results.

	Mean – SD	Difference in Mean – SD	t	p
Pretest	17.5-2.5	6.2-2.5	16.3	<0.001
Post test	25.5-1.5	83-3.6	18.6	<0.001

Very highly significant (at 99% CI)

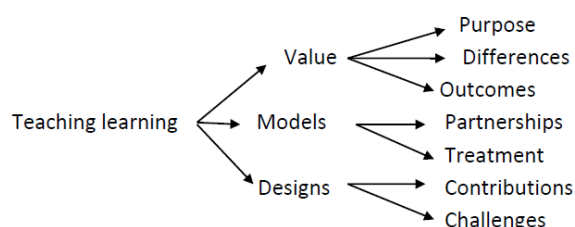


Fig 1: Categories and codes.

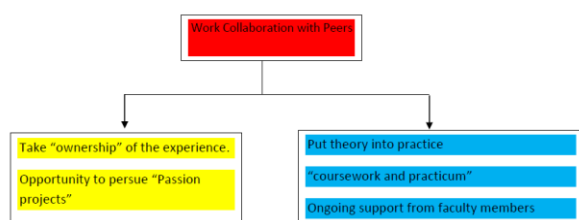


Fig 2: Strength of education learning programmes (with additional benefits built into specific design).

Dentist need to understand the socio-economic, physical and psychological problems and complexity in treating the elderly patients.² The alteration of age pyramid possess significant new challenges for healthcare professional since the 21st

century to provide oral health care to the geriatric population.³ There is a need to increase the overall knowledge of geriatric medicine to enhance the question of the life of elderly which is a social responsibility.⁴

Among the teaching and learning methods employed in dental education audio-visual media are most popular .These media provide a multi sensory experience.³ The different senses tends to play a key role in improving the memory of the student who can easily remember the content ie: presented. Efficacy of different media in the teaching learning process of a specific subject of dentistry is not well documented. Therefore the study was undertaken to determine the efficacy of powerpoint presentation in teaching gerodontology to dental interns.

MATERIALS AND METHOD

This is a prospective follow up study using a pre- and post- intervention assesment. A convenience sampling procedure was used .The study was done in Govt. Dental college.&Hospital , Nagpur. All dental interns (n=60) were invited to

participate in the study and written consent was taken. The study instrument used was 21-item structured self-administered closed-ended questionnaire (mcq's) based on four domains measuring: First, familiarity with geriatric dentistry, learning or teaching tools (6-items). Second, knowledge of health care challenges of elderly patients (6-items). Third, care provisions (6-items) and fourth neglect of care provisions (3-items). The questionnaire was adopted from Teasdale and Shaikh and adopted to suit the Indian context. All the Indian interns were assembled at a place of their choice and were asked to complete the pre intervention questionnaire which took approx. 10 min. Afterwards multiple investigators collaboratively gave an interest driven designed 30 min powerpoint presentation (MS office 2007) on "gerodontology". The presentation was also uploaded in their mobile devices.

The powerpoint presentation comprised on information on educational tools, and introduction to aging, oral and systemic health and details of challenges and care provisions of geriatric oral health. One week after the Pedagogical session the same interns were recalled and requested to complete the same questions again. Questions were coded allowing paired analysis of alteration in the scores. Each correct answer was awarded 1 point and the incorrect was given 0. The statistical package for the social services version 17 (SPSS .Inc.) was used for all data analysis. Paired T test was employed to find out the difference in pre and post test scores. McNemar test was used to find the improvement in correct answers for individual questions.

RESULTS

In the questions on Domain I - the percentage of correct answer increased one week after the presentation. Regarding the question related to mobile intensive learning and mobile intensive pedagogy by collaborative effort of multiple investigators. The correct answer scores increased post test. To a question, all the respondents agreed to include gerodontology in the dental school curriculum after the powerpoint presentation compared to only one/two before the test. (Table 1). Great changes were seen regarding coursework and practicum questions before and after

intervention. In all the domains, the post test values increased significantly. The overall mean scores pre-test were about 8.5 whereas the mean score post test increased to about 26.8. These difference was found to be statistically highly significant. In all the domains there was an overall increase in correct answers from 80.2% to 91.2% Post test. (Table 2)

CONCLUSION

Through our research we discovered a wide range of teacher learning practices in education programmes today. We organized these practises into three models which we then analyzed in terms of their benefits, challenges and design. We then focused on analysing the most salient design features in a specific subject of geriatric dentistry in terms of attributed effectiveness. (Fig.2) First, we found that effective module of teaching, learning programmes allowed teacher candidates to plan and implement the programme collaboratively with their peers as "Passion projects" and hence take ownership of their experience. (Cook P, Honeyford M) Secondly, on organizing the literature review as in a spreadsheet was to make the gaps in the scholarships easily identifiable and refer to mentorship of teacher candidates helping students with interest driven projects on oral health care.³

Third, with the research based design as a foundation we then added new component on specific subject², efficiency of mobile learning and and powerpoint presentation in teaching gerodontology.¹ There was a appreciable increase in number of graduates who answered that gerodontology should be part of dental school curriculum. The results are in agreement with Shah et al.³ When all the four domains were assessed there was an overall increase in post test scores one week after the presentation. The results are in agreement with Teasdale TA and Shaikh M.⁵ An overall comparison of all the domains revealed that improvement in knowledge in each of them could be attributed to the use of audio-visual aids. The results supports Mayer's cognitive theory of multimedia learning according to which while learning we place relevant words into auditory working memory and relevant images into visual working memory. This information is then integrated as one along with the prior knowledge.⁶ The use of diagrams and symbolic

devices such as graphs, flowcharts, and arrows helps students to understand the topic better.⁷

Limitations

Limitations of the study were small sample size and comparison with alternative techniques before implementation of this module can be studied further.

Take home message- Each teacher candidate should design passion projects beyond coursework and practicum to Collaborate and Contribute in the ongoing research in this era of information technology explosion towards oral health welfare services.

Ongoing Research and Evaluation

The study is ongoing. The investigators are currently collaborating to plan such programmes that will run in year 2017. The design of study includes having teacher candidates capture examples of learning by taking pictures and short video clips and so maintain the digital folder in their "Passion projects" and share such observations about teaching, learning for changing needs of the society nationally and internationally.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Kalk W, De Baat C. Is there a need for gerodontology? *Int. Dent. J* 1992;42:09-16
2. Sande AR, Suragimath A. Geriatric dentistry in India. *J. Indian. Acad oral Med Rad* 2014; 26; 298-301
3. Shah. N. Teaching learning and assessment in geriatric dentistry. *J.D.E* 2010;74:20-8
4. Thomas S. The need for geriatric dental education in India. *I.D.J.* 2013;63:130-6
5. Teasdale TA, Shaikh M. Efficacy of geriatric health CD as a learning tool. *J. Dent.Educ* 2006; 70:1366-9
6. Bartsch RA, Cobern KM. Effectiveness of powerpoint presentation in lectures. *J. Dent.Educ* 2003;41; 77-86.
7. Parolia A. Preferences regarding lectures Indian dental students. *J.D.E* 2012; 76; 366-71.